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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/777,786	02/06/2001	James E. DeGrange JR.	349	4316

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EXAMINER

PAYNE, DAVID C

ART UNIT	PAPER NUMBER
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2633

DATE MAILED: 05/10/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/777,786

Applicant(s)

DEGRANGE ET AL.

Examiner

David C. Payne

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 October 2003.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5,8-16 and 19-23 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-5,8-16 and 19-23 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

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## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments with respect to claims 1-5, 8-16, and 19-23 have been considered but are moot in view of the new ground(s) of rejection.

### *Double Patenting*

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1-25 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-23 of copending Application No. 09/777,774. Although the conflicting claims are not identical, they are not patentably distinct from each other because  
  
E.g., Claim 1 of '774 disclosed

An optical communications apparatus for power balancing a wavelength division multiplexed (WDM) signal output from an add module adding at least one channel to a signal input thereto, comprising: a gain element optically coupled to the add/drop module adding at least one channel to and dropping at least one channel from a signal input thereto, comprising:

said gain element imparting optical gain to the at least one channel received from the add channel port; a controller operatively coupled to said gain element, said controller receiving an input power measurement of the signal input to the add module; said controller determining an add path amplification value based on the input power measurement, a through loss associated with a signal passing through the add module, and an add loss

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associated with a signal traveling an add path of the add module; and said controller controlling said gain element according to the add path amplification value.

said gain element having a gain profile substantially matching a gain profile of the signal input to the add/drop module;

Claim 1 of '774 does not claim that a portion of a gain profile of said optical amplifier corresponding to a spectrum associated with said added at least one channel substantially matches a profile of a gain profile of said gain element corresponding to said spectrum.

However, it would have been obvious to one of ordinary skill in the art at the time of invention that the gain profile in '774 is essentially the spectrum in the instant application since one would only be interested in the spectrum of wavelengths are being amplified.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim(s) 1-5, 8-16, and 19-23 is/are rejected under 35 U.S.C. 103(a) as being unpatentable over Terahara US006535309B1 (Terahara) in view of Barnard et al. US 6,219,162 B1 (Barnard).

Re claim 1, 5, 8, 10, 14, 19, 21

Terahara disclosed

An optical communications apparatus/method (Figure 1) for power balancing a wavelength division multiplexed (WDM) signal output from an add module (10) adding at least one channel to a signal input thereto,

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comprising: a gain element (26) optically coupled to the add module and to an add channel port receiving at least channel to be added; said gain element imparting optical gain to the at least one channel received from the add channel port; a controller (25) operatively coupled to said gain element, said controller receiving an input power measurement of the signal input to the add module; said controller determining an add path amplification value based on the input power measurement (e.g., col./line: 7/28-45), a through loss associated with a signal passing through the add module ( $L_t$ ), and an add loss associated with a signal traveling an add path of the add module ( $L_d$ ) (see, col./line: 8/35-47); and said controller controlling said gain element according to the add path amplification value.

Terahara does not disclose where said gain element having a gain profile substantially matching a gain profile of the signal input to the add/drop module. Barnard disclosed the problems with an optical transmission experiencing a different gain profile along a transmission path (col./line: 1/40-50) and solution of performing a matching equalization process for transmission (col./line: 11/5-15). It would have been obvious to one of ordinary skill in the art at the time of invention to perform gain matching so as to eliminate optical signal impairments along the transmission line.

Re claim 4,

Terahara disclosed an optical communications apparatus for power balancing a wavelength division multiplexed (WDM) signal further comprising: a coupler (23) optically coupled to an input of the add module, an optical-to-electrical converter optically coupled to said coupler, said optical to-electrical (photoelectric conversion, see col./line: 7/30-35) coupler receiving a portion of light from the input signal input to the add module; said controller determining the input power measurement from an output of said optical-to-electrical converter.

Re claim 9, 22

Terahara does not disclose output amplifier performing gain flattening amplification for the signal output from the add module. However it would have been obvious to one of ordinary skill in the art at the time of invention that the regulation function of the controller disclosed in Terahara flattens the gain amplification of the added signal for the benefit of "regulating" or producing a composite signal at the output where the wavelengths have

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equivalent signal output that does not interfere with the other signal reception at the receiver.

Re claim 11, 12, 20

Terahara does not disclose wherein said gain element includes an add amplifier **and** a variable optical attenuator, said controller controlling said variable optical attenuator according to the add path amplification value. However, Terahara does disclose either an amplifier or VOA as an embodiment of the power regulation element (26, see col./line: 7/30-40). It would have been obvious to one of ordinary skill in the art at the time of invention that both of these elements could be used at once in the Terahara invention for the benefit of amplifying or attenuating individual add signals as needed. Where some signals may require attenuation rather than amplifying all signals and possibly causing problems in downstream receivers.

Re claim 13, 23

Terahara does not disclose wherein the add module is an add/drop module not dropping any channels. However, However it would have been obvious to one of ordinary skill in the art at the time of invention that the OADM circuit in Terahara might not drop signals for the benefit of obtaining a node that only feeds a network and would not require any terminating signals and therefore the loss associated with the coupled components.

6. Claim(s) 3 and 16 is/are rejected under 35 U.S.C. 103(a) as being unpatentable over Terahara US006535309B1 (Terahara) and Barnard US 6,219,162 B1 (Barnard) as applied to claims 1 and 14 above, and in further view of Xiao et al. US 20020101636A1 (Xiao).

Re claim 3, 16

The modified invention of Terahara and Barnard does not disclose controlling the amplification equation exactly as disclosed, namely  $P_{sub.addtotal} = P_{sub.in} + (Add\ Loss - Through\ Loss) + 10 \log N_{sub.add}$  where  $P_{sub.addtotal}$ =add path amplified power level in dBm,  $P_{sub.in}$ =per channel power level of signal input to the add module in dBm, Through Loss=loss associated with a signal passing through the add module in dBm, Add Loss=loss associated with a signal travelling an add path of the add module in dBm, and  $N_{sub.add}$ =number of

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added channels.

However, Xiao disclosed controlling a variable attenuation of add channels based on the following equations  $P_{\text{add,out}} = P_{\text{add}} - L = 10 \log (y\%) - L$ , where  $P_{\text{add,out}}$  is the power of the added channel,  $L$  is the loss introduced the VOA and  $y$  is the power taken by the tap (eg. P.4, (eq. 3). Further equations in Xiao taken into account power loss of through signals expressed a  $P_{\text{express}}$  (eq. 2, p.3). While Xiao does not use the same mathematical expression as the applicant it would have been obvious to one of ordinary skill in the art at the time to calculate amplification of power in the modified invention of Terahara and Barnard invention similar to the Xiao invention to completely account for losses in all elements of the add/drop element.

### *Conclusion*

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David C. Payne whose telephone number is (703) 306-0004. The examiner can normally be reached on M-F, 7a-4p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (703) 305-4729. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dcp

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